

DEPARTMENT OF COMMERCE

National Oceanic and Atmospheric Administration

Notice and Request for Comment on Two New Categories of Special Use Permits Related to the Operation of Desalination Facilities Producing Potable Water for Consumption.

AGENCY: Office of National Marine Sanctuaries (ONMS), National Ocean Service (NOS), National Oceanic and Atmospheric Administration (NOAA).

ACTION: Notice; request for public comments.

SUMMARY: In accordance with a requirement of Public Law 106-513 (16 U.S.C. 1441(b)), NOAA hereby gives public notice of and requests public comment on whether the Office of National Marine Sanctuaries should adopt two new special use permit (SUP) categories pursuant to the requirements of Section 310 of the National Marine Sanctuaries Act (16 U.S.C. 1441). The two new SUP categories would be: 1) the continued presence of a pipeline transporting seawater to or from a desalination facility; and 2) the use of sediment to filter seawater for desalination. This notice includes background information on the use of desalination in California national marine sanctuaries, ONMS regulations applicable to activities that disturb submerged lands or discharge into sanctuaries, as well as how NOAA would

examine the environmental impacts of such activities. While most current desalination activity in sanctuaries is occurring in California, the SUP categories are intended to apply across the national marine sanctuary system.

DATES: Comments must be received on or before [INSERT 30 DAYS FROM DATE OF PUBLICATION IN THE FEDERAL REGISTER].

ADDRESSES: You may submit comments, identified by docket ID NOAA-NOS-2016-0027 by one of the following methods:

- Electronic submissions: Submit all electronic public comments via the Federal eRulemaking Portal. Go to <http://www.regulations.gov/#!docketDetail;D=NOAA-NOS-2016-0027>, click the ``Comment Now!`` icon, complete the required fields, and enter or attach your comments.
- Mail: Submit all written comments to Bridget Hoover, Monterey Bay National Marine Sanctuary, 99 Pacific Street, Bldg 455A, Monterey, CA 93940.

Instructions: Comments sent by any other method, to any other address or individual, or received after the end of the comment period, may not be considered by NOAA. All comments received are a part of the public record and will be posted to <http://www.regulations.gov> without change. All Personal Identifying Information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly

accessible. Do not submit confidential business information or otherwise sensitive or protected information. ONMS will accept anonymous comments (for electronic comments submitted through the Federal eRulemaking Portal, enter N/A in the required fields if you wish to remain anonymous).

FOR FURTHER INFORMATION CONTACT:

Bridget Hoover, Monterey Bay National Marine Sanctuary, 99 Pacific Street, Bldg 455A, Monterey, CA 93940.

SUPPLEMENTARY INFORMATION: This **Federal Register** document is also accessible via the Internet at:

<http://montereybay.noaa.gov>.

I. Background

Introduction to Desalination Projects in Sanctuaries

There is a growing public concern about ensuring adequate water resources to support populations along the California coast. Communities have been working together to develop strategies for addressing the long-term drought California is currently experiencing and the resulting water scarcity. In the Monterey Bay area, desalination has been identified as one of the essential components of water resource portfolios. While NOAA is currently reviewing proposals for the construction of desalination plants located in California, the management

alternatives described in this notice are intended to be applied across the National Marine Sanctuary System.

Desalination is the process by which salts and other minerals are removed from seawater or brackish water to produce potable fresh water. The installation and operation of desalination facilities near a national marine sanctuary may involve access to and use of sanctuary resources and include activities prohibited by a sanctuary's regulations. One potentially applicable prohibition is for activities that cause the alteration of, or placement of structures on or in the seabed. For example, installation of certain desalination facility structures such as an intake or outfall pipeline on or beneath the ocean floor would be prohibited by sanctuary regulations and could only occur with sanctuary approval. Another prohibition potentially applicable to desalination projects is discharging or depositing any material or matter from within or into sanctuaries. The disposal of brine effluent, and in some cases other materials, into sanctuary waters would be prohibited unless approved by the sanctuary.

Multiple federal, state and local permits are typically required for any construction and operation of desalination facilities near a national marine sanctuary. In 2010, NOAA in collaboration with the California Coastal Commission, California

Central Coast Regional Water Quality Control Board, published specific guidelines for new desalination plants in a report titled Guidelines for Desalination Plants in Monterey Bay National Marine Sanctuary (MBNMS 2010, <http://montereybay.noaa.gov/resourcepro/resmanissues/pdf/050610desal.pdf>). These non-regulatory guidelines were developed to help ensure that any future desalination plants in or adjacent to Monterey Bay National Marine Sanctuary would be sited, designed, and operated in a manner that results in minimal impacts to the marine environment. Although they were developed for a specific sanctuary, the guidelines would likely apply to potential desalination facilities near any national marine sanctuaries. These guidelines address numerous issues associated with desalination including site selection, construction and operational impacts, plant discharges, and intake systems. The guidelines encourage the use of subsurface intake systems and associated pipelines, which have less potential to cause environmental harm to sensitive marine organisms. Open water intakes have the potential to trap organisms on the intake screens (impingement) or impact organisms small enough to pass through the screen during the processing of the saltwater (entrainment). Subsurface intakes have the potential to minimize or eliminate impingement and entrainment impacts (Chambers Group

Memo 2010). When subsurface intakes are not feasible, and a new pipeline for an open water intake is necessary, placement should be thoroughly evaluated to minimize disturbances to biological resources. In addition, the guidelines encourage co-location with existing facilities (e.g., sewage treatment plants) to dilute brine by blending it with existing effluent for ocean discharges.

The guidelines also examine which statutory and regulatory authorities would apply to desalination projects located near national marine sanctuaries. The guidelines explain that NOAA could potentially allow the construction and operation of desalination facilities through sanctuary authorization of other state and federal permits, such as the State of California's Coastal Development Permit and National Pollution Discharge Elimination System (NPDES) permit.

Authorizations vs Special Use Permit (SUP)

Depending on the type of activity or project proposed, NOAA has various regulatory mechanisms it can use to allow otherwise prohibited activities to occur within national marine sanctuaries. Two of these mechanisms are authorizations and special use permits.

Authorizations allow a person to conduct an activity prohibited by sanctuary regulations if such activity is

specifically authorized by any valid Federal, State, or local lease, permit, license, approval, or other authorization issued after the effective date of sanctuary regulation (15 CFR § 922.49). SUPs can only be issued for activities that are needed (1) to establish conditions of access to and use of any sanctuary resources; or (2) to promote public use and understanding of a sanctuary resource (16 USC 1441(a)). In addition, the activities must be compatible with the purposes for which the sanctuary is designated and with protection of sanctuary resources (16 USC 1441(c)). SUPs must require that activities carried out under the permit be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources. Six¹ national marine sanctuaries currently have regulations enabling them to issue authorizations while all of the sanctuaries have authority to issue SUPs.

When a desalination project is proposed in or near a national marine sanctuary and would involve activities prohibited by national marine sanctuary regulations, the project can only occur if NOAA has the regulatory mechanism to approve such activities. For example, a desalination project may include various activities such as: installation, maintenance, and

¹ The following national marine sanctuaries currently have regulations enabling them to issue authorizations: Florida Keys, Flower Garden Banks, Monterey Bay, Olympic Coast, Stellwagen Bank, and Thunder Bay. However, Florida Keys and Olympic Coast NMSs are the only ones adjacent to land where desalination facilities could be placed.

removal of a pipeline on or within the submerged lands of a national marine sanctuary; discharge of brine into a national marine sanctuary; presence of a pipeline transporting seawater to or from a desalination facility; and use of sediment to filter seawater for desalination. A national marine sanctuary that has regulatory authority to issue authorizations² would use authorizations to consider whether it can approve the pipeline installation, maintenance, and removal, and brine discharge within the national marine sanctuary, because these activities are prohibited by most sanctuary regulations regarding discharges and disturbance of the seabed and cannot occur without proper authorization from NOAA. Brine discharges would also not be covered by a SUP, but by authorization of another permit. However, an authorization would not take into account the continued use of sanctuary resources by the pipeline because those activities would not violate sanctuary regulations, uses which may require continued monitoring and management by NOAA. In the case of a proposal for a desalination project, NOAA has found that there is a much larger burden on staff to review the environmental analysis and process an authorization application for this type and scale of project. The National Marine

² A national marine sanctuary needs to have regulatory authority to issue authorizations in order to approve construction and operations of a desalination facility. This regulatory authority is described at 15 CFR 922.49.

Sanctuaries Act (NMSA) calls for a special category of permits (called "special use permits or SUPs") to establish conditions of use of any sanctuary resources and to promote public use of a sanctuary resource (16 U.S.C. 1441(a)). The NMSA gives NOAA authority to develop categories of SUP in order to assess fees related to issuing and administering permits and for expenses of managing national marine sanctuaries (16 U.S.C. 1441(d)(3)). This includes the processing of applications, preparation and review of environmental analysis as well as long-term monitoring of the impacts of the activity to sanctuary resources. As such, a SUP would be the appropriate mechanism for NOAA to approve the continued presence of a pipeline transporting seawater to or from a desalination facility and use of sediment to filter seawater for desalination, should the proposed project be carried out in a manner that is consistent with Section 310 of the NMSA.³

This Federal Register notice proposes to add two new SUP categories that could apply to proposed desalination projects. These categories are: 1) the continued presence of a pipeline

³This management approach has been applied with respect to submarine fiber optic cables in a sanctuary where the installation of the infrastructure is considered via a separate authorization and the continued presence of the infrastructure is addressed through an SUP (ONMS 2002).

transporting seawater to or from a desalination facility; and 2) the use of sediment to filter seawater for desalination.

In May 2013, NOAA clarified that simply being consistent with one of the categories does not guarantee approval of an SUP for any given activity. Applications are reviewed for consistency with the SUP requirements in section 310(c) of the NMSA, as well as the published description of the category. Of particular importance, SUPs may only be issued for activities NOAA determines can be conducted in a manner that does not destroy, cause the loss of, or injure sanctuary resources (NMSA section 310(c)(3)). Individual SUP applications are also reviewed with respect to all other pertinent regulations and statutes, including NEPA and any required consultations, permits or authorizations. NOAA would assess whether activities associated with proposed desalination projects are appropriate for one or both of these new SUP categories on a case-by-case basis, and as part of the federal environmental review process required by the National Environmental Policy Act (NEPA). NOAA would take into consideration whether the activity can meet the findings in Section 310(c) of the NMSA (16 USC 1441(c)). Under NEPA, NOAA would analyze the environmental impacts of the entire proposed federal action (i.e., the desalination project) including the issuance of any SUPs and sanctuary authorizations.

While NOAA could conceivably propose new SUP categories for other types of pipelines, utility lines, or use of sediment associated with activities other than desalination (e.g., sewage treatment, or power generating facilities), NOAA selected to limit the focus on these two new SUP categories to desalination activities. Desalination is a current issue on the West Coast and may become an issue across the country in the future. There is enough information on the types of activities associated with desalination to make a determination that under certain conditions, such as if correctly sited and compliant with MBNMS Desalination Guidelines, they are not likely to result in injury to sanctuary resources, which is a requirement for SUPs. It would be too speculative at this point for NOAA to analyze impacts of other types of pipelines, or other project impacts in the absence of a more clearly defined need or proposal for such activities.

NMSA Special Use Permits

Congress first granted NOAA the authority to issue SUPs for the conduct of specific activities in national marine sanctuaries in the 1988 Amendments to the National Marine Sanctuaries Act (NMSA; 16 U.S.C. 1431 *et seq.*) (Pub. L. 100-627). NMSA section 310 allows NOAA to issue SUPs to establish

conditions of access to and use of any sanctuary resource or to promote public use and understanding of a sanctuary resource.

In the National Marine Sanctuaries Amendments Act of 2000 (Pub. L. 106-513), Congress added a requirement that prior to requiring a SUP for any category of activity, NOAA shall give appropriate public notice. NMSA section 310(b) states that

``[NOAA] shall provide appropriate public notice before identifying any category of activity subject to a special use permit under subsection (a).'' On January 30, 2006, NOAA published a list of five categories for which the requirements of SUPs would be applicable (71 FR 4898). NOAA further refined this list of categories for which an SUP could be issued on May 3, 2013 (78 FR 25957), so that it now includes seven categories of SUPs as follows:

1. The placement and recovery of objects associated with public or private events on non-living substrate of the submerged lands of any national marine sanctuary.
2. The placement and recovery of objects related to commercial filming.
3. The continued presence of commercial submarine cables on or within the submerged lands of any national marine sanctuary.

4. The disposal of cremated human remains within or into any national marine sanctuary.
5. Recreational diving near the USS Monitor.
6. Fireworks displays.
7. The operation of aircraft below the minimum altitude in restricted zones of national marine sanctuaries.

Pursuant to NMSA section 310(d), NOAA may assess three types of fees associated with the conduct of any activity under an SUP: (1) administrative costs, (2) implementation and monitoring costs; and (3) fair market value (FMV) of the use of the sanctuary resource (16 USC 1441(d)). On November 19, 2015, NOAA published a Federal Register notice finalizing the methods, formulas and rationale for the calculations it uses to assess fees associated with the existing seven SUP categories (80 FR 72415).

NOAA proposes to use the same methods previously established in the Federal Register for assessing an application fee, administrative costs, and implementation and monitoring costs of these two new SUP categories. NOAA would require a non-refundable \$50 application fee. The labor costs assessed as part of administrative costs would be based on a Federal regional labor rate that will be updated every year to account for staff

changes as well as inflation. Administrative costs would include any environmental analyses and consultations associated with evaluating the SUP application and issuing the permit; equipment used in permit review and issuance (e.g., vessels, dive equipment, and vehicles), and general overhead. NOAA may also assess a fee for costs associated with the conduct or implementation of a permitted activity as well as the costs of monitoring the activity. The latter costs would cover the expenses of monitoring the impacts of a permitted activity and compliance with the terms and conditions of the permit. Examples of implementation and monitoring costs can include the cost of site preparation, site examination, and the use of vessels and aircraft. Lastly, NOAA can assess a fee for fair market value for use of sanctuary resources. NOAA is proposing and seeking public comment on specific methods for assessing FMV for the two new categories of SUPs, which are described in subsequent sections of this Federal Register notice.

II. Summary of Proposed New Special Use Permit Categories

NOAA proposes to add two new categories of SUPs: (1) the continued presence of a pipeline transporting seawater to or from a desalination facility; and (2) the use of sediment to filter seawater for desalination.

1. The continued presence of a pipeline transporting seawater to or from a desalination facility.

NOAA is proposing that pipelines transporting seawater for purposes of onshore desalination, that have been laid on or drilled or bored within the submerged lands of a national marine sanctuary, may, after appropriate environmental review, application of best management practices, and compliance with MBNMS Desalination Guidelines, could remain in place without causing injury to sanctuary resources. Therefore, NOAA establishment of a SUP category is appropriate. For purposes of this rule, NOAA is using "transporting seawater to or from a desalination facility" to mean seawater being pumped from a sanctuary into a facility and/or concentrated brine water being pumped out of a facility through a pipe and into a national marine sanctuary (brine discharge is addressed below).

In order to avoid or minimize impacts to the marine environment due to the presence of the pipeline, the best management practices (BMP) from the MBNMS Desalination Guidelines will be employed to ensure proper siting, sizing, engineering, and configuration of intake and outfall pipelines. New desalination pipelines are manufactured with high tensile stainless steel to avoid breakage or corrosion in seawater and

would be monitored annually to evaluate their continued integrity. Submerged pipelines should have little propensity for movement or shifting. There are many pipelines associated with power plants and wastewater facilities that have been in existence for more than 50 years with no adverse impacts due to their presence on the seafloor (MLML 2006; MRWPCA 2014).

Existing pipelines installed prior to the publication of the final Federal Register notice for these two proposed new SUP categories would be exempt from this SUP category. Moreover, existing pipelines that would not fall under the purview of this SUP category include sewage treatment plant, power plant and aquaculture facility pipes.

2. The use of sediment to filter seawater for desalination.

Nearly all seawater intake systems carry out initial filtration of seawater to remove particulate matter and living organisms. The 2010 Guidelines for Desalination Projects in Monterey Bay National Marine Sanctuary promote the use of subsurface seawater intakes that bring in seawater filtered through natural sand beds within a sanctuary. To attain in-situ filtration, a pipeline is typically drilled or bored from an upland location into the natural sand deposits within submerged lands. Latent seawater is then drawn into the pipe and seawater

collection system, incurring the benefit of natural filtration through the in-situ sand deposits. Four types of sanctuary resources may be affected by seawater filtration using subsurface intakes: sand, biological resources (marine organisms), water, and minerals. For the purposes of this notice, NOAA refers to "sediment" as sand, silt, clay or any combination thereof that could be used to filter seawater. For most coastal desalination facilities the most sought after sediment is typically sand.

Sand is a natural filter media and used in many systems to remove particulate matter from water; examples include private swimming pool systems to large aquarium filtration systems. Sand is naturally-occurring in many areas on the ocean floor and, in the right conditions, seawater will naturally infiltrate the seabed into underlying aquifers. In a 2010 study, infiltration rates at a site in Southern California, based on a 30 MGD intake, were calculated between 5.1×10^{-5} ft/sec to 7.8×10^{-7} ft/sec depending on distance from the slant well (Williams, Jenkins 2010). This study reported that the ocean would have to become perfectly still in order for nano and net-plankton and other freely drifting micro-organisms to become impinged or trapped on the seabed by the vertical pull induced by the slant well field. This indicates that the substrate would not be

fouled or degraded by particulate matter traveling through it with the seawater. In addition, the California American test slant well in Marina, CA was sampled for multiple constituents including Total Suspended Solids (TSS) and turbidity. The associated NPDES Start Up report indicated that TSS were not detected and the turbidity concentration was 1.6 Nephelometric Turbidity Units (NTU).⁴ This result confirms very little particulate matter traveling with the seawater through the test well (Geoscience 2015). Based on these previous analyses, NOAA believes that the use of an in-situ natural resource of a national marine sanctuary - the natural sand deposits - may take place with no harm to the natural sand deposits (Williams, Jenkins 2010).

As described above, the subsurface seawater intake methodology greatly reduces the incidental intake and mortality of small marine organisms including larvae and young life stages of fish and invertebrates in a sanctuary's waters. A separate evaluation for a project in Southern California reported that benthic organisms typically live in the top two feet of the sediment, and most of them in the top two inches (Chambers Group 2010). The distance between the marine life in the seafloor sediments and the intake of the slant wells will most likely be

⁴CA Ocean Plan Maximum is 225 NTU.

greater than 50 feet. If subsurface intake systems are deep enough, there is typically very little biological activity at deeper depths in natural sand beds. Thus the impacts to living natural resources would not be considered, in general, to be substantial (Chambers Group 2010; Geoscience 2010).

Seawater contains approximately 35 grams of salt to one liter of water. To extract salt to make drinking water, desalination facilities use a process called reverse osmosis. Permeable membranes are used to filter out the salt as they allow only a certain size molecule or ion to pass through, thereby creating a freshwater stream and a dense brine stream. Most systems are less than 50% effective so the resulting effluent is approximately half brine (concentrated salt water) and half fresh water. The salt particles would be returned to the ocean in the form of brine, resulting in minimal net loss of salt from the ocean. The impacts of any ONMS-authorized brine discharge from a desalination project would be analyzed pursuant to NEPA as part of the authorization required for a discharge. They are not relevant to this notice's specific focus on the two new SUP categories, which are not meant to encompass brine discharges.

Water is a vast and vital resource as it provides habitat, recreation, sustenance, and transportation to name a few

examples. Historically, we have believed that water supplies were limitless, which may be the case depending on the beneficial use that it provides. With the recent drought in California, as well as regulatory decisions that remove public water supplies such as dam removal, drinking water supplies have been severely restricted, thus increasing the interest in desalination. The Northern Pacific Ocean is estimated to contain 331,000,000 km³ of water (NOAA). Power plants draw hundreds of millions of gallons (MGD) of seawater each day for cooling. A medium sized desalination plant would extract approximately 20 MGD. In reality, over half of the water gets returned to the ocean. For desalination projects, approximately 50% or more of the seawater withdrawn will be returned to the ocean. Therefore NOAA believes the extraction of the ocean water, following appropriate environmental reviews, compliance with the MBNMS Desalination Guidelines, and application of appropriate BMPS, would not injure sanctuary resources and establishment of a SUP category is appropriate.

III. Assessing Fair Market Value Fees for the Two Proposed New SUP Categories

NOAA proposes to use the same methods previously established in the Federal Register for assessing an application

fee, administrative costs, and implementation and monitoring costs of these two new SUP categories (November 19, 2015; 80 FR 72415).

Fair market value (FMV) fees are specific to each category of SUP. As such, NOAA is requesting public comment on the following proposed set of FMV fees:

1. The fair market value of the continued presence of a pipeline transporting seawater to or from a desalination facility.

Fair market value calculation

The proposed annual fair market value would be calculated by assessing the volume of the pipeline in cubic inches multiplied by a value of \$0.02 per cubic inch. The annual FMV equation would therefore be:

$$\text{Annual FMV} = ((V \times \$0.02/\text{in}^3) \times N) / \text{yr}$$

Where:

$$V = \text{volume of the pipeline (in}^3\text{)} = (\pi r^2 \times L);$$

$$\pi = 3.14159;$$

r = radius of the pipeline (in); and

L = average length of the pipeline(in) for the portion within the sanctuary.

N = number of pipelines

FMV costs would be paid as annual rent for the duration of the permit. In developing the proposed FMV calculation for this SUP category, NOAA examined: a conceptually similar SUP category for the continued presence of submarine cables; the California State Lands Commission (CSLC) lease process for pipelines, conduit, or fiber optic cables; and offset requirements established by CSLC for an open water desalination project in Southern California.

NOAA's FMV calculation for the continued presence of submarine cables in a national marine sanctuary uses the overall linear distance (length) the infrastructure occupies on or within the seafloor within the sanctuary in assessing FMV ("Fair Market Value Analysis for a Fiber Optic Cable Permit in National Marine Sanctuaries"; 67 FR 55201). The proposed FMV methodology to assess a fee for the presence of a pipeline uses the volume of the pipeline, which includes both its length (linear distance) and area, thus accounting for its total presence on or within the submerged lands.

In addition, NOAA surveyed comparable fees assessed by the State of California for the issuance of leases in submerged lands of the state for pipelines, conduits or fiber optic cables. The value of \$0.02 per cubic inch of pipeline would be established because NOAA considers this to be a similar metric

(i.e., a state lease for allowing pipelines) to one of the options the CSLC uses to calculate the cost of the issuance of leases in submerged lands of the state for pipelines, conduits or fiber optic cables (CCR Title 2. Division 3. Chapter 1. Article 2 CCR 2003. (Rent and other considerations) (a) (4)). In order to calculate the cost, the CSLC uses one of three approaches: a cost based on a linear value (cost per diameter inch per lineal foot of pipe, cable, conduit); a case by case rate to process an environmental impact report which is paid upfront; or 9% of the appraised value of the leased land. In order to calculate the FMV of the continued presence of a pipeline, NOAA selected to use a mathematical approach based on the size and footprint of the project pipelines. Therefore, NOAA's monetary multiplier is based on the first approach used by the CSLC.

Example

In the FMV example provided below, a special use permit for a desalination plant project includes one, 100-foot long seawater intake pipelines with a 15-inch radius to be bored into the submerged lands of a sanctuary.

$$\text{Annual FMV} = ((V \times \$0.02/\text{in}^3) \times N)/\text{yr}$$

$$V = (\pi r^2 \times L)$$

$$\pi = 3.14159$$

$$r = 15 \text{ in}$$

$$L = (100 \text{ ft}) \times (12 \text{ in/ft}) = 1200 \text{ in}$$

$$V = 3.14159 \times (15 \text{ in})^2 \times 1200 \text{ in} = 848,230 \text{ in}^3$$

$$N = \text{number of pipelines} = 1$$

$$\text{Annual FMV} = ((848,230 \text{ in}^3 \times \$0.02/\text{in}^3) \times 1) / \text{yr}$$

$$\text{Annual FMV for one, or for each pipeline} = \$16,964/\text{yr}$$

This annual cost would be applicable for the length of the permit.

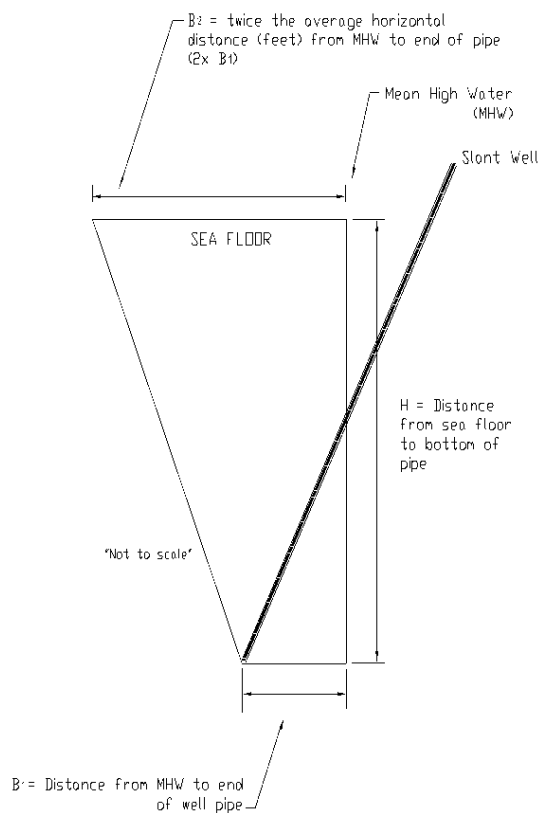
2. The fair market value of non-consumptive use of sediment substrate within the submerged lands of any national marine sanctuary for the purpose of in-situ filtration of seawater intake.

Fair market value calculation

The proposed FMV fee value for this SUP category is based on determining the amount of sand substrate within an active filtration area surrounding the pipeline. NOAA recognizes there are many factors that influence filtration rates, such as grain size and pumping distance. For transparency and clarity, NOAA proposes to calculate the volume of sand used for in-situ filtration as the area of a trapezoid determined by the depth of the pipeline and horizontal length into the sanctuary multiplied

by a length along the shoreline. This geometric form is based on the area within the sanctuary jurisdiction beginning at mean high water and extending seaward along the sea floor twice the distance of the pipe. As documented in the Geosciences report (2010), as the distance increases from the well, the infiltration rate becomes slower through the seabed. We used a distance for the base of the trapezoid, equaling the average distance from mean high water to the terminus of the slant well pipes, and doubled it for the seafloor distance to represent the slower infiltration rate the farther you get from the well. Because every situation will be different, and there may not always be groundwater modeling available, we selected a conservative estimate of total volume of sediment that would provide the in-situ filtration. The proposed FMV would be calculated by assessing the volume of sand substrate within the sanctuary used for filtration for a desalination facility multiplied by a value of \$0.003 per cubic foot of sand. NOAA researched the cost of commercial sand and learned that cost is primarily driven by processing, packaging and especially shipping, due to the weight. The proposed value is based on available information and the deduction of these estimated added costs. Total FMV costs would be paid on an annual basis for the duration of the permit. To calculate the cross section area of

sediment used for in-situ filtration, NOAA proposes that the shoreward boundary would be the mean high water (MHW) mark. The formula to calculate the area of a trapezoid is: $A = h[1/2 \times (b_1 + b_2)]$, where b_1 and b_2 are the lengths of each base, and h is the height of the trapezoid. See the following figure:



The height of the trapezoid would be equal to the depth of the pipeline below the seafloor within the sanctuary at MHW. The first base (b_1) would be the horizontal distance from MHW to the extent of the pipeline, averaged over the number of pipelines

proposed. The other base (b_2) would be equal to two times that average horizontal distance. This is a conservative approach as the filtration rate could extend much further seaward. Length equals 200 feet for one pipeline. If there were more than one pipeline, length would equal 200 feet multiplied by the number of pipelines. For multiple pipelines closer than 200 feet apart, we would use the actual distance between pipelines. In a real world application, the calculation would be altered to meet the actual specifications of the individual project. Given the above parameters, the annual FMV cost would be equal to:

$$\text{Annual FMV} = L \times A \times \$0.003/\text{ft}^3$$

L = length (ft) equals 200 ft (100 ft on either side of the pipeline) of sand for filtration of seawater. If there is more than one pipeline, then L will be multiplied by the number of pipelines.

$$A = \text{area of the trapezoid (ft}^2\text{)} = h[1/2 \times (b_1 + b_2)]$$

h = height (ft) = vertical distance from seafloor at MHW to the depth of the bottom of the pipeline

b_1 = base₁ (ft) = horizontal distance between MHW to the end of pipeline

$$b_2 = \text{base}_2 \text{ (ft)} = (2 \times b_1)$$

Example

A special use permit for a desalination project that includes calculations for one pipeline. The calculation is for one pipeline that extends 100 feet horizontally into the sanctuary (b_1) and the well terminates 325 feet below the surface of the seafloor calculated at MHW (h).

$$\text{Annual FMV} = L \times A \times \$0.003/\text{ft}^3$$

Where:

$$L = 200 \text{ ft}$$

$$A = h(1/2(b_1 + b_2)) = 325(1/2(100 + 200)) = 48,750 \text{ ft}^2$$

$$h = 325 \text{ ft}$$

$$b_1 = 100 \text{ ft}$$

$$b_2 = 2 \times 100 \text{ ft} = 200 \text{ ft}$$

$$\text{Volume of sand} = 200 \text{ ft} \times 48,750 \text{ ft}^2 = 9,750,000 \text{ ft}^3$$

$$\begin{aligned} \text{Annual FMV for one, or for each pipeline: } & 9,750,000 \text{ ft}^3 \times \$ \\ & 0.003/\text{ft}^3 = \$29,250/\text{yr} \end{aligned}$$

This annual cost would be applicable for the length of the permit.

Using the above example, a configuration for ten pipelines would have annual FMV of \$292,500/yr ($10 \times \$29,250/\text{yr}$). This arrangement could be used for a desalination facility that would produce approximately 10 MGD or 3.65 billion gallons of water per year. Thus, the example of the FMV for in-situ sand

filtration for 10 pipelines within a national marine sanctuary would add a cost of \$0.00008/gallons/yr or 1 cent for every 150 gallons of freshwater produced. This figure is obtained by dividing the FMV for in-situ sand filtration by 10 million and multiplying it by 365, since the examples assume a 10 million gallon per day capacity. The calculation is: (\$292,500/year) / (10,000,000 million gallons/day) / (365 days/year) = \$0.00008/gallons/year.

While both SUP categories may or may not be applied to one project, the average FMV for a project which does includes both SUP categories mentioned above, would be obtained by adding the cost of both examples, dividing it by 10 million and multiplying it by 365, since the examples assume a 10 million gallon per day capacity. The calculation is: (\$292,500/year + \$169,646/yr) / (10,000,000 million gallons/day) / (365 days/year) = \$0.00013/gallons/year.

Cost Comparison for Pre-treatment for an Onshore Desalination Facility

As mentioned above, NOAA surveyed fees assessed by other federal, state, and local agencies for similar activities but could find no other example of FMV for the use or value of in-situ sand for filtering seawater. Therefore, for comparison

purposes to determine a fair market value for the in-situ use of sand as a filter for desalination, NOAA used a 2008 report produced by the Department of Interior Bureau of Reclamation (USBR) that analyzed actual costs for land-based reverse osmosis plants that produce potable water as the next best alternative to an offshore facility (USBR 2008).

Pretreatment is considered the portion of the filtration where water is cleared of impurities in preparation for reverse osmosis. For the purpose of finding a comparative FMV with NOAA's in-situ sediment filtration, we determined that it would be reasonable to compare the FMV of pretreatment at a land-based facility producing 25 MGD with the FMV of pretreatment in-situ for a hypothetical 10 MGD facility similar to one currently proposed on California's Central Coast. The pretreatment cost for the land-based facility is based on annual operating and maintenance costs.

In the land-based example from the USBR study, using the microfiltration method with ultraviolet disinfection, the cost of annual operations and maintenance for land-based pretreatment for a 25 MGD facility would be \$3.3M as described in the study (estimating a cost variation for reverse osmosis of +30% to -15% to reflect the confidence interval related to \$3.3M). NOAA

estimated that this would be equal to a cost of \$0.0003616/gal/year.

For the purpose of comparison, NOAA compared the cost of the USBR study site to a hypothetical coastal project that produced 10 MGD, which seems to be a reasonable scale for a future proposed project on the West Coast. The result of this comparison shows that the fees NOAA is proposing for FMV for in-situ sand filtration would be 35% of the costs of pretreatment for a land based facility (\$0.0003616 gals/yr) (give or take confidence interval of +30% to -15%), which is the next best alternative.

Cost Comparison for Open Water Intake Desalination Facility

In addition to the comparison method described above for charging for the volume of the pipeline in cubic inches, NOAA also looked at a similar open water pipeline project in Southern California that uses desalination to provide drinking water in order to estimate the magnitude of costs of regulatory compliance (not fair market value) associated with the permitting of desalination facilities in a real-world setting. This open water pipeline project was proposed by Cabrillo, LLC and Poseidon, LLC and received a permit by the California Coastal Commission in 2008. The California State Lands

Commission required the project to invest in various offset and restoration efforts to mitigate the impacts of the facility, such as obtaining 25,000 tons of carbon offsets for the construction and operational impacts. In that project, the average offset price from 2011 to 2016 was \$14.87 per ton of carbon offset, for a total of \$371,750. In addition, the facility was required to restore a minimum of 37 acres of wetlands (up to 55.4 acres) with a non-cancelable deposit of \$3.7 million and to provide a deposit of \$25,000 to the CSLC to reimburse staff expenses incurred to monitor compliance with the terms of the lease. While these costs associated with environmental compliance are not directly comparable with the FMV proposed for these two SUP categories, they provide context for the scale of costs required by various agencies to permit or authorize large coastal projects such as a desalination plant.

3. Conclusion

NOAA's application of the alternative methods in this analysis ensures fair market value fee proposals do not make the desalination method using in-situ sand filtration cost-prohibitive relative to other methods. Based on the comparison analysis, the fees that NOAA proposes to charge are comparative, not prohibitively expensive, and less than the existing

reasonable alternatives for sand filtration. For a proposed project that would require both SUP category types, NOAA considered the annual costs of the proposed fees based on the examples presented in this notice, and converted them to a dollar per gallon figure that can be applied to future proposed projects of varying size and scale. NOAA determined that the total cost of the fair market value using both SUP category types would amount to approximately \$0.00013/gal for a facility of a scale similar to the example used in this notice (i.e., ten 100-foot pipelines for a 10 MGD facility). As stated above, this would be in addition to the potential administrative cost associated with the environmental review, and application review of an SUP.

IV. Request for Comments

NOAA is requesting public comments on whether the addition of two new categories to the requirements of special use permits pursuant to the requirements of Section 310 of the National Marine Sanctuaries Act (16 U.S.C. 1441), which would apply to all coastal national marine sanctuaries with authorization authority, is the appropriate mechanism to allow activities associated with a desalination project. The two new SUP categories would be: 1) the continued presence of a pipeline

transporting seawater to or from a desalination facility; and 2) the use of sediment to filter seawater for desalination. NOAA is also requesting comments on the proposed methods to calculate the FMV costs of the use of sanctuary resources.

V. Classification

A. National Environmental Policy Act

NOAA has concluded that this action will not have a significant effect, individually or cumulatively, on the human environment. This action is categorically excluded from the requirement to prepare an Environmental Assessment or Environmental Impact Statement in accordance with Section 6.03c3(i) of NOAA Administrative Order 216-6. Specifically, this action is a notice of an administrative and legal nature. This action would only establish the two new special use permit categories and the methods for calculating fair market value for applicable projects. It does not commit the outcome of any particular federal action taken by NOAA. Furthermore, individual permit actions taken by ONMS will be subject to additional case-by-case analysis, as required under NEPA, which will be completed as new permit applications are submitted for specific projects and activities. In addition, NOAA may, in certain circumstances, combine its special use permit authority with

other regulatory authorities to allow activities not described above that may result in environmental impacts and thus require the preparation of an environmental assessment or environmental impact statement. In these situations, NOAA will ensure that the appropriate NEPA documentation is prepared prior to taking final action on a permit or making any irretrievable or irreversible commitment of agency resources. The NEPA analysis would describe the impacts of the full project (i.e., both construction (allowed with an authorization) and operations (allowed with an SUP)).

B. Paperwork Reduction Act

Notwithstanding any other provisions of the law, no person is required to respond to, nor shall any person be subject to a penalty for failure to comply with a collection of information subject to the requirements of the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 *et seq.*, unless that collection of information displays a currently valid Office of Management and Budget (OMB) control number. Applications for the special use permits discussed in this notice involve a collection-of-information requirement subject to the requirements of the PRA. OMB has approved this collection-of-information requirement under OMB control number 0648-0141. The collection-of-information requirement applies to persons seeking special use

permits and is necessary to determine whether the proposed activities are consistent with the terms and conditions of special use permits prescribed by the NMSA. Public reporting burden for this collection of information is estimated to average twenty four (24) hours per response (application, annual report, and financial report), including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. This estimate does not include additional time that may be required should the applicant be required to provide information to NOAA for the preparation of documentation that may be required under NEPA.

Authority: 16 U.S.C. 1431 et seq.

Dated: January 3, 2017.

John Armor,
Director,
Office of National Marine Sanctuaries

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